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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Dennis Nielsen

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EXAMINER

STELLING, LUCAS A

ART UNIT

PAPER NUMBER

1797

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DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/565,992	<b>Applicant(s)</b> NIELSEN, DENNIS	
	<b>Examiner</b> Lucas Stelling	<b>Art Unit</b> 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 March 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 33,36,38-43,45,46 and 49-61 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 33,36,38-43,45,46 and 49-61 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3-26-09 has been entered.

### ***Claim Objections***

2. Claims 50-53 are objected to because of the following informalities: The preamble begins "The method according to" and it should be -- The product according to --. Appropriate correction is required.

3. Claim 53 is objected to because of the following informalities: Claim 53 depends from a canceled claim. For purposes of examination it will be interpreted to depend from claim 41. Appropriate correction is required.

4. Claim 55 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 54, from which claim 55 depends, does not include the use of  $\text{Pb}^{2+}$  as an acceptable divalent metal ion..

5.

***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 49 is are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. As to claim 49, these claims further limit an element of a Markush group in a parent claim. The limitations of claim 49 could be taken to require the use of a divalent metal ion as the inhibitor thereby negating the Markush group, or they could be taken to limit which types of divalent metal ions are able to meet the Markush group limitation, if and only if a divalent metal ion is used. Because these claims are amenable to multiple plausible constructions they are indefinite. See *Ex part Miyazaki* (BPAI Presidential 2008) (*As such, we employ a lower threshold of ambiguity when reviewing a pending claim for indefiniteness than those used by post-issuance reviewing courts. In particular, rather than requiring that the claims are insolubly ambiguous, we hold that if a claim is amenable to two or more plausible claim constructions, the USPTO is justified in requiring the applicant to more precisely define the metes and bounds of the claimed invention by holding the claim unpatentable under 35 U.S.C. § 112, second paragraph, as indefinite.*) For purposes of examination it will be interpreted that claim 49 are limiting to the Markush group if and only if a divalent metal ion is used.

***Claim Rejections - 35 USC § 103***

9. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

10. Claims 33, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.K. Patent No. 1,567,773 to Welwyn Hall Research Associates ("Welwyn") in view of U.S. Patent No. 6,916,426 to Van Slyke et al. ("Van Slyke").

11. As to claim 33, Welwyn teaches a method of treating waste matter from animals **(Welwyn title)**, the method comprising:

collecting waste matter from the animals **(Welwyn page 2 lines 115-116)**; and  
separating said urease-activity inhibited waste mater into a urea-rich fraction essentially consisting of a liquid comprising urea and other components soluble in liquid manure and a urea-lean fraction **(Welwyn page 4 lines 60-65; solid and liquid fractions are separated)**;

recovering the urea-rich essentially rich fraction **(Welwyn page 4 lines 70-80)**;  
and

recovering the urea-lean fraction **(Welwyn page 4 lines 115-120)**

12. Welwyn further indicates that, prior to lime addition, urea decomposition is temperature dependent, so a person of ordinary skill would know to control the temperature to reversibly inhibit urease activity **(Welwyn page 3 lines 40-45 and lines 94-100)**, but Welwyn does not teach the use of decreasing the pH, buffering the pH, affecting the pressure, or affecting the ionic strength, prior to the lime addition step to control unwanted urea decomposition. Van Slyke teaches the use of lowering the pH in

Art Unit: 1797

order to reversibly inhibit urease in collected waste (**Van Slyke col. 6 lines 58-61 and col. 6 line 66 -- col. 7 line 3**). Van Slyke teaches that the reversible inhibition allows for reduced urea decomposition between waste treatment intervals (**Van Slyke col. 7 lines 1-3**). Therefore it would have been obvious to a person of ordinary skill in the art at the time of invention to reversibly inhibit the urease by pH lowering in order to reduce urea decomposition between waste treatment intervals.

13. As to claim 40, Welwyn teaches the method of claim 33, wherein the waste-matter comprises feces and liquid manure from farm animals (**Welwyn title**).

14. Claims 36 and 38 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Welwyn and Van Slyke as applied to claim 33 above, and further in view of U.S. Patent No. 6,287,550 to Trinh et al. ("Trihn").

15. As to claim 36, Wylwyn and Van Slyke teach the method of claim 33, and Welwyn uses lime to cease urease activity, but does not teach the use of an enumerated irreversible inhibitor listed in claim 36. Trihn uses metal ions in order to prevent ureas activity (**Trihn col. 5 lines 15-35**). The use of a known composition for its intended purpose is prima facie obvious. See MPEP 2144.07.

16. As to claim 38, the urea-lean fraction in Welwyn, Van Slyke and Trihn is the faeces, which is partially solid.

17. As to claim 49, Trihn contemplates, for example, copper nitrate as a known urease inhibitor (**Trihn col. 5 lines 15-35**).

Art Unit: 1797

18. Claim 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Welwyn and Van Slyke and Trinh as applied to claim 36 above in further view of Scott.

19. As to claim 39, Scott teaches the recovery of the inhibitor in so that the inhibitor may be reused (**Scott page 2, left side, second full paragraph**). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to recover a urease inhibitor such as those in Trihn, when used in the process of Welwyn, Van Slyke and Trihn, in order that the inhibitor may be reused.

20. Claims 41-43 and 50-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Welwyn and Van Slyke as well as Trihn.

21. As to claim 41, Welwyn and Van Slyke teach the method of claim 33, which produces a urea-rich fraction having reversible urea inhibition. The product of claim 41 is therefore obvious as the product of an obvious process. Welwyn does not teach any purification or removal step for waste-matter indicators, so these will be present in the product (**Welwyn page 3 lines 20-50, the fractions are produced from animal dung and urine; because no purification or removal step is taught, the product will inherently contain animal waste-matter indicators**).

22. As to claim 42, the reversible inhibition of Welwyn and Van Slyke uses a pH of less than six, which is very close to the pH of 5.5 used by applicant (**Van Slyke col. 6 lines 66-67, and see instant application page 19 lines 9-18**).

23.

Art Unit: 1797

24. As to claim 43, and 50-52, Welwyn and Van Slyke teach the method of claim 33 which produces an obvious product. Trihn teaches art recognized urease inhibitors. Scott teaches using phosphate and magnesium to irreversibly fix the nitrogen in waste liquid. Scott also teaches removal of the phosphate and magnesium for reuse, which would leave only minor residues, which a person of ordinary skill in the art would know to minimize in order to maximize the amount of treatment chemical that can be reused. The use of phosphate and magnesium to fix the nitrogen content is the selection of a known material based on its suitability for the intended purpose. MPEP 2144.07.

25. As to claim 53, Welwyn does not teach any purification or removal step for waste-matter indicators, so these will be present in the product **(Welwyn page 3 lines 20-50, the fractions are produced from animal dung and urine; because no purification or removal step is taught, the product will inherently contain animal waste-matter indicators).**

26. Also, as to claims 41-43, and 50-53, Because of the nature of product-by-process claims the Examiner cannot ordinarily focus on the precise difference between the claimed product and the disclosed product. IT is then Applicants' burden to prove that an unobvious difference exists. See *In re Marosi*, 218 USPQ 289,292-293 (CAFC 1983).

27. Claims 45, 46, 60 and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Welwyn in view of Van Slyke and U.S. Patent No. 3,677,736 to Formaini ("Formani").



Art Unit: 1797

28. As to claims 45 and 46, Welwyn teaches a method of treating waste matter from animals (**Welwyn title**), the method comprising:

collecting waste matter from the animals (**Welwyn page 2 lines 115-116**); and  
separating said urease-activity inhibited waste mater into a urea-rich fraction essentially consisting of a liquid comprising urea and other components soluble in liquid manure and a urea-lean fraction (**Welwyn page 4 lines 60-65; solid and liquid fractions are separated**);

recovering the urea-rich essentially rich fraction (**Welwyn page 4 lines 70-80**);  
and

recovering the urea-lean fraction (**Welwyn page 4 lines 115-120**)

29. Welwyn further indicates that, prior to lime addition, urea decomposition is temperature dependent, so a person of ordinary skill would know to control the temperature to reversibly inhibit urease activity (**Welwyn page 3 lines 40-45 and lines 94-100**), but Welwyn does not explicitly teach the use of a reversible inhibitor such as the use of decreasing the pH, buffering the pH, affecting the pressure, or affecting the ionic strength, prior to the lime addition step to control unwanted urea decomposition. Van Slyke teaches the use of lowering the pH in order to reversibly inhibit urease in collected waste (**Van Slyke col. 6 lines 58-61 and col. 6 line 66 -- col. 7 line 3**). Van Slyke teaches that the reversible inhibition allows for reduced urea decomposition between waste treatment intervals (**Van Slyke col. 7 lines 1-3**). Therefore it would have been obvious to a person of ordinary skill in the art at the time of invention to

Art Unit: 1797

reversibly inhibit the urease by pH lowering in order to reduce urea decomposition between waste treatment intervals.

30. Welwyn also does not contemplate reacting the urea-rich fraction of waste with methanal. However, it is worth noting that Welwyn does contemplate using the urea-rich fraction as fertilizer. Formaini teaches that solutions containing urea may be reacted with formaldehyde to produce an improved fertilizer suspension composition **(Formaini see e.g. claim 1, col. 6 lines 15-45)**. Formaini teaches that such a urea-form suspension allows for a supply of quickly available nutrients along with a slow release of nitrogen as well as visible indication of the patches which have been fertilized and those that have not **(Formaini col. 2 lines 1-11)**. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to react the urea solution in Welwyn with formaldehyde in order to produce an improved fertilizer suspension with desirable characteristics.

31. As to claims 60 and 61, Welwyn as modified by Van Slyke and Formaini teach the method of claim 45, and Formaini teaches using acidic conditions in order to form the final urea-form product **(Formaini see col. 6 lines 35-40)**. As to the step of concentrating the product, this is a common and obvious step in many chemical syntheses and is often accomplished through 2-phase extraction, recrystallization, or evaporation of solvents, as it allows persons of ordinary skill in the art to remove byproducts and prepare desired products for storage and shipping.

Art Unit: 1797

32. Claims 54 and 55 rejected under 35 U.S.C. 103(a) as being unpatentable over Welwyn as modified by Van Slyke and Formaini as applied to claim 45 above, and further in view of Trihn.

33. As to claim 54, Wylwyn, Van Slyke and Formaini teach the method of claim 45, and Welwyn uses lime to cease urease activity, but does not teach the use of an enumerated irreversible inhibitor listed in claim 54. Trihn uses metal ions in order to prevent ureas activity (**Trihn col. 5 lines 15-35**). The use of a known composition for its intended purpose is prima facie obvious. See MPEP 2144.07.

34. As to claim 55, Trihn contemplates, for example, copper nitrate as a known urease inhibitor (**Trihn col. 5 lines 15-35**).

35. Claims 56-59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Welwyn, Van Slyke and Formaini as applied to claim 45 above, and further in view of U.S. Patent No. 2001/0047963 to Morita et al. ("Morita").

36. As to claims 56-59, Welwyn as modified by Van Slyke and Formaini does not teach the use of filtering the urea-rich fraction. Morita teaches using nano-filtration and reverse osmosis in order to obtain a urea permeate from sewage for various industrial processes (**Morita see [0001] -- [0014]**). Morita explains that filtration allows for the recovery of naturally occurring urea, especially where safety is a concern (**Morita [0010] and [0013]**). Therefore, it would have been obvious to a person of ordinary skill in the art to filter the urea-rich fraction in order to remove impurities that would prohibit the use of recovered urea as a raw material in industrial processes. Also, as to the use

Art Unit: 1797

of successive filtration in claims 57-59, this is known to those skilled in the art and allows for successive purification and removal of successively smaller impurities and it minimizes clogging on the more sensitive membranes.

### ***Response to Arguments***

37. Applicant's arguments filed 3-26-09 have been fully considered but they are not persuasive.

38. Applicant's first argument is that Welwyn does not teach reversible inhibition nor that the waste is separated. In response to the reversible inhibition, Welwyn does suggest that urea decomposition is temperature dependent, which would lead persons of ordinary skill in the art to believe that urea decomposition could be inhibited by lowering the temperature. However, Welwyn does not explicitly suggest this.

Notwithstanding, Van Slyke teaches lowering the pH below the slotted floors in order to inhibit the ammonia discharge. In response to applicant's argument that the waste is not separated, applicant's attention is directed to **(Welwyn page 4 lines 60-65; solid and liquid fractions are separated)**.

39. Applicant next argues that claim 33 distinguishes by collecting total waste, reversibly inhibiting, separating, and recovering. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Welwyn teaches collecting the waste,

Art Unit: 1797

separation, and recovery, Van Slyke teaches an intermediate step of reversible inhibition in order to prevent ammonia discharge during intermittent delay.

40. Applicant next argues that Van Slyke lowers the pH in order to irreversibly inhibit urease. In response, it is noted that applicant admits that the acid treatment in Van Slyke is a mention of urease inhibition **(See Remarks page 10 lines 8-9)**. Applicant is incorrect in believing that the inhibition is irreversible, however, because the acidic environment is maintained below the slotted floors and not, necessarily permanently.

41. Applicant next argues that claims 36, 38, and 39 are patentable by implication. This argument is not persuasive as claim 33 is rejected.

42. Applicant next argues with respect to claim 41, that it is improper to assume that waste matter indicators will be present in the product. In response, Welwyn discusses that the waste matter is animal dung **(See Welwyn page 1 lines 10-15)**. It stands to reason, therefore, that the dung will contain animal waste indicators until they have been removed. Furthermore, due to the nature of claim 41 as a product-by-process claim, the burden is on applicant to show evidence establishing an unobvious difference between the prior art product and that claimed. See MPEP 2113, *Once the examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product.* See also 2112(I) and (II), *Something which is old does not become patentable upon the discovery of a new property, and Inherent feature need not be recognized at the time of the invention.*

Art Unit: 1797

43. Applicant argues that claims 42, 43 and 50-53 are patentable by implication.

This is not persuasive as claim 41 is rejected.

44. Applicants argument with respect to claim 45 is moot in view of the new grounds of rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lucas Stelling whose telephone number is (571)270-3725. The examiner can normally be reached on Monday through Thursday 12:00PM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

las 5-20-09

/Matthew O Savage/  
Primary Examiner, Art Unit 1797

Application/Control Number: 10/565,992  
Art Unit: 1797

Page 14